## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
## BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Docket No:  Q77576

Yung-lyul LEE, et al.

Appln. No.:  10/669,709

Group Art Unit:  2621

Confirmation No.:  6387

Examiner:  Gims S. Philippe

Filed:  September 25, 2003

For:  SIGNAL ADAPTIVE FILTERING METHOD, SIGNAL ADAPTIVE FILTER AND COMPUTER READABLE MEDIUM FOR STORING PROGRAM THEREFOR

### REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

**MAIL STOP APPEAL BRIEF - PATENTS**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.41, Appellant respectfully submits

this Reply Brief in response to the Examiner's Answer dated January 12, 2010.  Entry of this

Reply Brief is respectfully requested.

### Table of Contents

## STATUS OF CLAIMS

Claims 1-6 and 8-25 are pending in the application. Claim 7 was cancelled in the Amendment Under 37 C.F.R. § 1.111 of August 13, 2007.

Claims 2, 3, 5, 6, and 8-13 are allowed.

Claims 1, 4, and 14-25 are on appeal.

## GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 4 and 14-25 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S.

Patent No. 5,787,204, hereinafter "Fukuda".

## ARGUMENT

Applicant has carefully reviewed the Examiner's Answer and respectfully maintains that claim 1 is patentable because each and every element of the claim is not disclosed by Fukuda.

Appellant responds to the new points raised by the Examiner in his Answer.

In the Appeal Brief, the Applicant showed how Fukuda fails to disclose or suggest checking whether all coefficients of all pixels in a predetermined region of the data block are equal to zero or not, in combination with other elements of claim 1.

Without any ambiguity, the Examiner states that the 4x4, 3x3 and 1x1 pixel regions in Fig. 14A of Fukuda correspond to the claimed predetermined region.[1] discloses and that a threshold disclosed by Fukuda both support his finding that Fukuda discloses the claimed predetermined region.[2]

Applicant respectfully disagrees because the 4x4, 3x3 and 1x1 pixel regions of Fukuda are not predetermined and because the setting of any threshold cannot possibly correspond to the claimed predetermined region.

Applicant respectfully submits that even the broadest reasonable interpretation consistent with the specification does not support the Examiner's position. In response to the Examiner's arguments in the Answer, Applicant submits that one of ordinary skill in the art would, at the

---

[1] See Examiner's Answer at 5 ("predetermined regions of 4x4, 3x3 and 1x1"), 6 ("To the examiner [sic] in the hatched regions are predetermined based upon the threshold set by decision circuit 214"), and 7 ("the 1x1 portion is considered to be a first predetermined region; the 3x3 portion is a second predetermined number of pixel [sic] for a second predetermined region and 4x4 is a third predetermined region for a predetermined number of pixels . . . .").

[2] See id. at 5.

time the application was filed, recognize that "predetermined" means that there is a

determination made beforehand.[3]

In an exemplary embodiment, the Applicant's specification discloses checking the

coefficients at predetermined regions, namely, the upper boundary region 300 and the left

boundary region 310.[4] These regions are necessarily determined before checking the coefficients

therein. In contrast, the pixel regions cited by the Examiner are _not_ determined before any sort

of checking takes place.

Fukuda Fails to Disclose Predetermined Regions

Examiner states that[5]:

> The examiner respectfully disagrees. Fukuda provides an **8x8 block of interest** where
> coefficients of a 4x4 pixel region are non-zero coefficients or the significant coefficients
> (See Fukuda col. 10, lines 54-67 and col. 11, lines 1-1). To the examiner, the 4x4 pixels
> are in a predetermined region in a chosen block of interest. In addition, Fukuda

Fukuda strives to remove block distortion based on orthogonal transform coefficients. In

Fig. 13, which is related to the Fig. 14A cited by the Examiner, the compressed image data is

received by a variable-length code decoding circuit 211, which decodes variable-length codes of

---

[3] See Specification at 7, lines 16-24 (disclosing pixel A, upper boundary region 300, and left boundary region 310) and Merriam-Webster Online Dictionary 2010 at <http://www.merriam-webster.com/dictionary/predetermine> (accessed February 24, 2010; defining predetermine as: "1a: FOREORDAIN, PREDESTINE b: to determine beforehand; 2: to impose a direction or tendency on beforehand)). See also, Webster's Ninth New Collegiate Dictionary 1990 (defining predetermine as same).

[4] See Applicant's Specification at p. 7, lines 18-24.

[5] Examiner's Answer at p. 5-6.

the compressed image data.[6] Then the variable-length decoded data is inverse quantized to

output transform coefficients for each block.[7]

Fukuda discloses in Fig. 14A that the blocks, which are 8 pixels by 8 pixels, may have a

certain arrangement of significant coefficients:
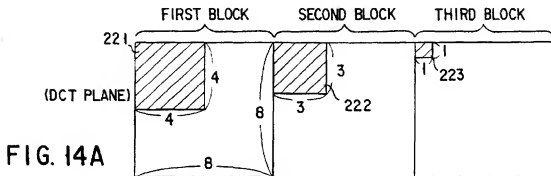


FIG. 14A

As mere examples, Fukuda supposes that the significant coefficients may be in a 4x4 (ref. no.

221), 3x3 (ref. no. 222) or a 1x1 (ref. no. 223) pixel arrangement, as shown by the shaded areas

in Fig. 14A:[8]

> To be specific, suppose now that orthogonal transform
> coefficients of three blocks applied to the inverse orthogonal
> transform circuit 213 are DCT coefficients of 8 pixels×8
> pixels as shown in FIG. 14A and the coefficients of a 4×4
> portion 221. a 3×3 portion 222 and a 1×1 portion 223 each
> indicated by oblique hatching are not zeros. The coefficient

---

[6] See Fukuda at col. 12, lines 31-35.

[7] See id. at col. 12, lines 35-38.

[8] See id. at col. 12, lines 62 - 67.

Fukuda, however, does not check whether all coefficients in these shaded areas are significant or not. Rather, Fukuda discloses entirely the opposite - finding the significant coefficients and then <u>afterwards</u> determining the shaded area containing the significant coefficients.

Specifically, Fukuda <u>firstly</u> determines where the significant coefficients are located in the 8x8 entire block.[9] <u>After</u> the significant coefficients are located, Fukuda <u>secondly</u> determines, by way of <u>example</u>, that there may be 4x4, 3x3 or 1x1 pixel areas, e.g., the shaded areas 221, 222, 223, within the 8x8 pixel block where the significant coefficients are located.[10]

Hence, Fukuda cannot possibly check whether all the coefficients in a predetermined one of 4x4, 3x3 and 1x1 pixel areas are significant coefficients because Fukuda simply does not - nor provide any disclosure to - predetermine which one of the pixel areas to use <u>prior</u> to the search for the significant coefficients.

---

[9] <u>See</u> col. 12, lines 39- 47 ("The output data of the inverse quantization circuit 212 is applied to an inverse orthogonal transform circuit 213 and a coefficient decision circuit 214. The transform circuit 213 obtains an image signal in real space. The coefficient decision circuit 214 makes a comparison between absolute values of spatial frequency components and a threshold value for each of the blocks and sends significant coefficients larger than the threshold value to a distortion removal characteristic determining circuit 217.") and 62-67. <u>See also,</u> col. 5, line 14 - 23 ("Suppose now that orthogonal transform coefficients of a block of interest, which are applied to the coefficient decision circuit 14, are such DCT (discrete cosine transform) coefficients of 8x8 pixels as shown in FIG. 2A. A comparison between the absolute value of each coefficient and a threshold value th (=10) decides that the coefficients indicated by oblique hatching in FIG. 2B are significant coefficients not less than the threshold value 10.").

[10] <u>See</u> col. 12, line 62 - col. 13, line 3

Additionally, Applicant submits that the purpose of the finding the significant coefficients in Fukuda is to determine the filter characteristics for the block of interest, which does not disclose or suggest the checking in order to generate filtering information on whether the data block requires filtering. Referring to col. 9, line 54 - col. 11, line 21 and FIG.s 10A and 10B of Fukuda, the shaded areas 221, 222, 223 just indicate the characteristics of the block and are used to determine the filter characteristics for the block of interest.

Threshold of Fukuda Does Not Disclose Predetermined Region

The Examiner also takes the position that[11]:

In addition, Fukuda discloses a coefficient decision circuit 214 of fig. 13 which decides which portions of an image (indicated by oblique hatching) contains significant non-zero coefficients. To the examiner in the hatched regions are predetermined based upon the threshold set by decision circuit 214.

Applicant respectfully disagrees.

Fukuda discloses the coefficient decision circuit 214 of Fig. 13 as follows:[12]

The coefficient decision circuit 214 decides that the portions 221, 222 and 223 indicated by oblique hatching are significant coefficients because they are not zeros. The way of deciding non-zeros

---

[11] Examiner's Answer at 6.

[12] Col. 12, lines 67 - col. 13, line 3.

Fukuda discloses that the threshold is used to determine whether an orthogonal transform coefficient is a significant coefficient or not. As explained above, this determining of whether a coefficient is significant is firstly performed and then, at best, the 4x4, 3x3 or the 1x1 pixel area may subsequently be determined as including the significant coefficients. To wit, the threshold is used prior to the determination of any area.

While the threshold may be set prior to the search for significant coefficients, it would be unreasonable to consider the threshold value itself as corresponding to the claimed predetermined region. In no way would one be able to determine the metes and bounds of the pixel area which only contains the significant coefficients, simply based on the threshold value. Rather, the threshold value must be compared with each coefficient to determine whether the coefficient is significant, and based on the arrangement of the significant coefficients, the 4x4, 2x2 or the 1x1 pixel areas may then be determined.

Therefore, the Examiner's characterization of the threshold value as supposedly showing the 4x4, 2x2 and 1x1 pixel areas as being predetermined regions is entirely without support.

Weight of Federal Circuit Case Law Supports Applicant's Position

In view of the Examiner's argument in the Reply Brief that the 4x4, 3x3 or the 1x1 pixel area, or that the threshold of Fukuda discloses the claimed predetermined region, Applicant submits that the weight of Federal Circuit case law shows that the Examiner's characterization is without merit.

In Planet Bingo L.L.C. v. GameTech International, Inc., the Federal Circuit construed claims involving a bingo game and require "predetermined winning combination," which the

Federal Circuit held as "set[ting] the winning combination before the game begins."[13] In another

opinion in <u>Pause Technology L.L.C. v. TiVo Inc.</u>, the Federal Circuit held "that the district court

properly construed 'time interval of predetermined duration' to mean that the duration of the

time interval for recording signals into the buffer memory must be fixed prior to operation."[14] In

a footnote in <u>Koito Manufacturing Co. v. Turn-Key-Tech L.L.C.</u>, the Federal Circuit upheld a

district court decision that "predetermined general direction" requires "foreknowledge of flow

directions."[15] In contrast, Fukuda's 4x4, 3x3 and 1x1 pixel areas are <u>not</u> determined beforehand

and thus, cannot be predetermined.

      Lastly, the Examiner's argument that Fukuda's threshold corresponds to the claimed

"predetermined region" is similar to an argument in <u>Planet Bingo</u> that the Federal Circuit

specifically discredited. In <u>Planet Bingo</u>, the Federal Circuit held that:

> The claims recite a "progressive . . . predetermined winning combination" not merely
> "predetermined rules" for identifying a winning combination. The rules may dictate that a
> "red bingo" will win the progressive game. The winning combination, however, identifies
> the particular squares, colored red, that will produce the progressive bingo.[16]

Essentially, the Federal Circuit held that "predetermined winning combination" is different from

"predetermined rules." Here, Fukuda's threshold is akin to the "predetermined rules" in <u>Planet</u>

---

[13] <u>Planet Bingo L.L.C. v. GameTech Int'l, Inc.</u>, 472 F3d 1338, 81 U.S.P.Q.2d (BNA) 1145, 1149 (Fed. Cir. 2006).

[14] <u>Pause Tech. L.L.C. v. TiVo Inc.</u>, 419 F3d 1326, 76 U.S.P.Q.2d (BNA) 1110, 1118 (Fed. Cir 2005).

[15] <u>Koito Mfg Co. v. Turn-Key-Tech L.L.C.</u>, 381 U.S. 1142, 72 U.S.P.Q.2d (BNA) 1190, 1196 (Fed. Cir. 2004).

[16] <u>Planet Bingo</u>, 72 U.S.P.Q.2d (BNA) at 1148.

<u>Bingo</u>, in that the threshold may determine which of the coefficients are significant. The claimed

"predetermined region," however, identifies the specific region where the significant coefficients

should be checked, and knowing the threshold will <u>not</u> identify the specific region to be checked.

      In view of the above and for the arguments in the Appeal Brief, Applicant submits that

the rejections are in error and should be reversed.

<div align="center">

**CONCLUSION**

</div>

      For the above reasons as well as the reasons set forth in Appeal Brief, Appellant

respectfully requests that the Board reverse the Examiner's rejections of all claims on Appeal.

An early and favorable decision on the merits of this Appeal is respectfully requested.

Respectfully submitted,

/ S. Stuart Lee /

SUGHRUE MION, PLLC            S. Stuart Lee
Telephone: (202) 293-7060      Registration No. 61,124
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: March 12, 2010